

**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE**

AFFYMETRIX, INC., a Delaware corporation,

Plaintiff/Counter-Defendant,

v.

ILLUMINA, INC., a Delaware corporation,

Defendant/Counter-Plaintiff.

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Civil Action No.: 04-901 JJF

PUBLIC VERSION

**APPENDIX TO ILLUMINA, INC.'S OPENING *MARKMAN* BRIEF
VOLUME 1 OF 3**

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EXHIBIT A



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(12) **United States Patent**
Pirrung et al.

(10) Patent No.: **US 6,646,243 B2**
(45) Date of Patent: **Nov. 11, 2003**

(54) **NUCLEIC ACID READING AND ANALYSIS SYSTEM**

(75) Inventors: **Michael C. Pirrung**, Durham, NC (US); **J. Leighton Read**, Palo Alto, CA (US); **Stephen P. A. Fodor**, Palo Alto, CA (US); **Lubert Stryer**, Stanford, CA (US)

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 18 days.

(21) Appl. No.: **10/098,203**

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US 2003/0013100 A1 Jan. 16, 2003

Related U.S. Application Data

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(51) Int. Cl.⁷ **H01J 40/00; C12Q 1/68; C07H 21/02**

(52) U.S. Cl. **250/200; 250/302; 250/458.1; 250/559.38; 435/6; 435/7.1; 536/22.1; 536/25.32**

(58) Field of Search **250/200, 302, 250/458.1, 559.38; 435/6, 7.1; 536/22.1, 25.32**

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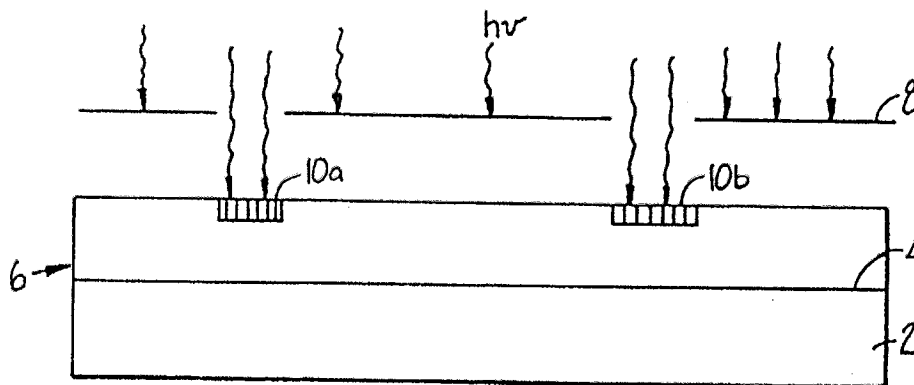
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(57) **ABSTRACT**

A method and apparatus for preparation of a substrate containing a plurality of sequences. Photoremovable groups are attached to a surface of a substrate. Selected regions of the substrate are exposed to light so as to activate the selected areas. A monomer, also containing a photoremovable group, is provided to the substrate to bind at the selected areas. The process is repeated using a variety of monomers such as amino acids until sequences of a desired length are obtained. Detection methods and apparatus are also disclosed.

53 Claims, 22 Drawing Sheets



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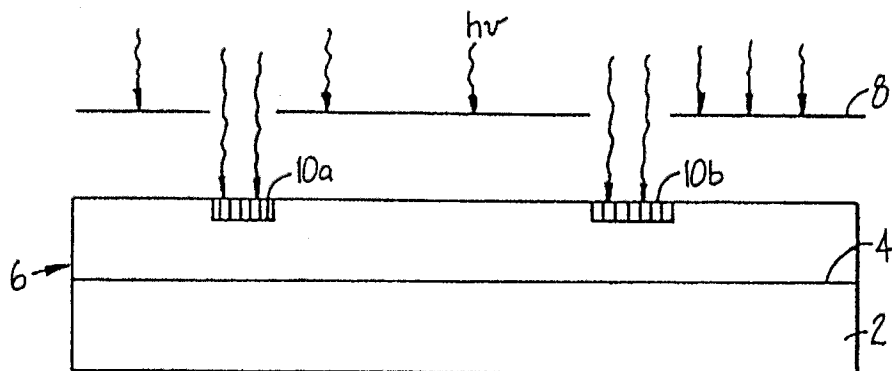


FIG. 1.

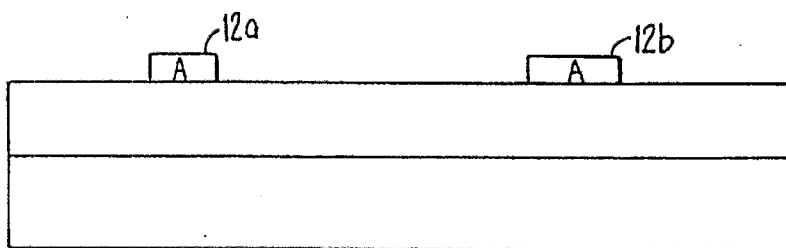


FIG. 2.

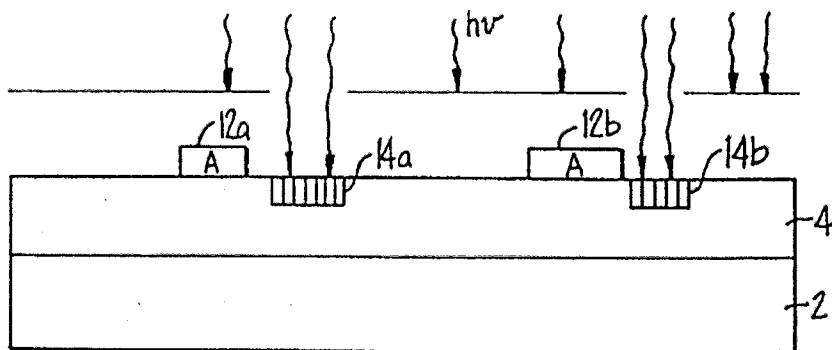


FIG. 3.

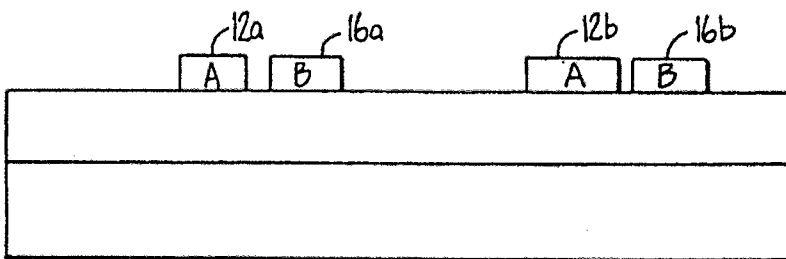


FIG. 4.

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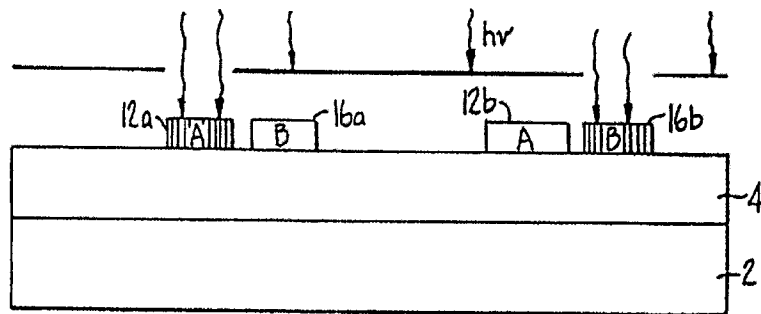


FIG. 5.

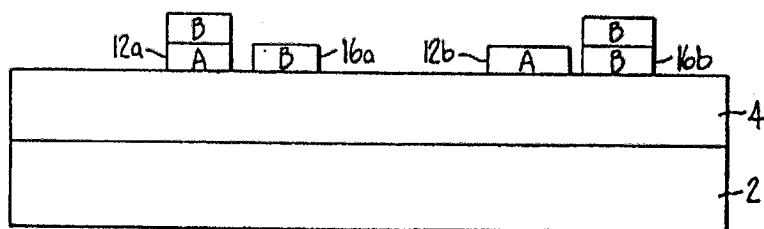


FIG. 6.

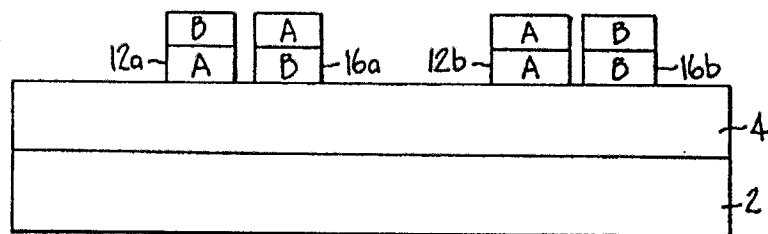


FIG. 7.

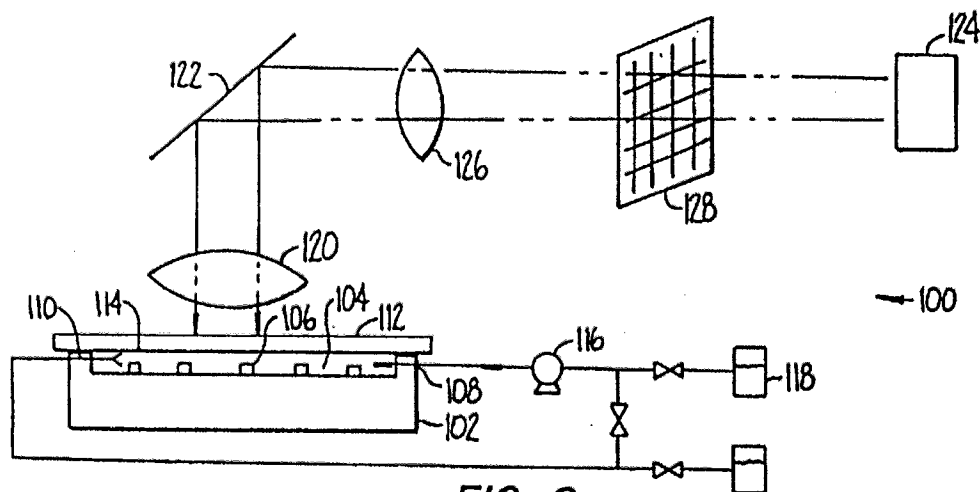


FIG. 8a.

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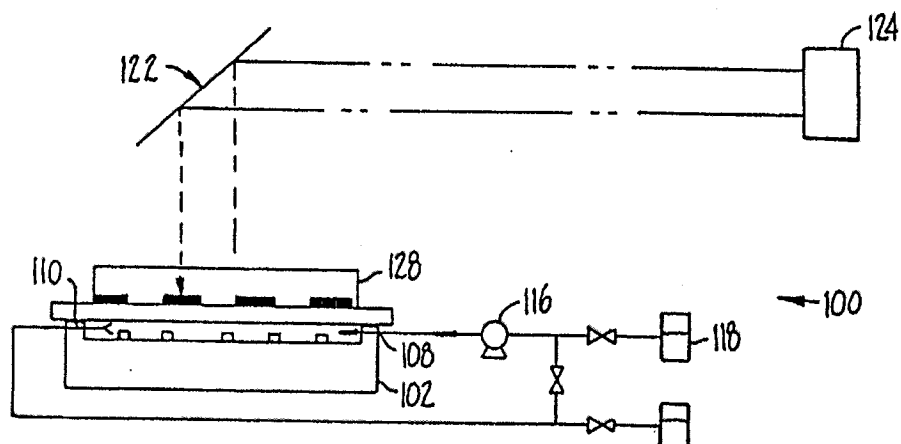


FIG. 8b.

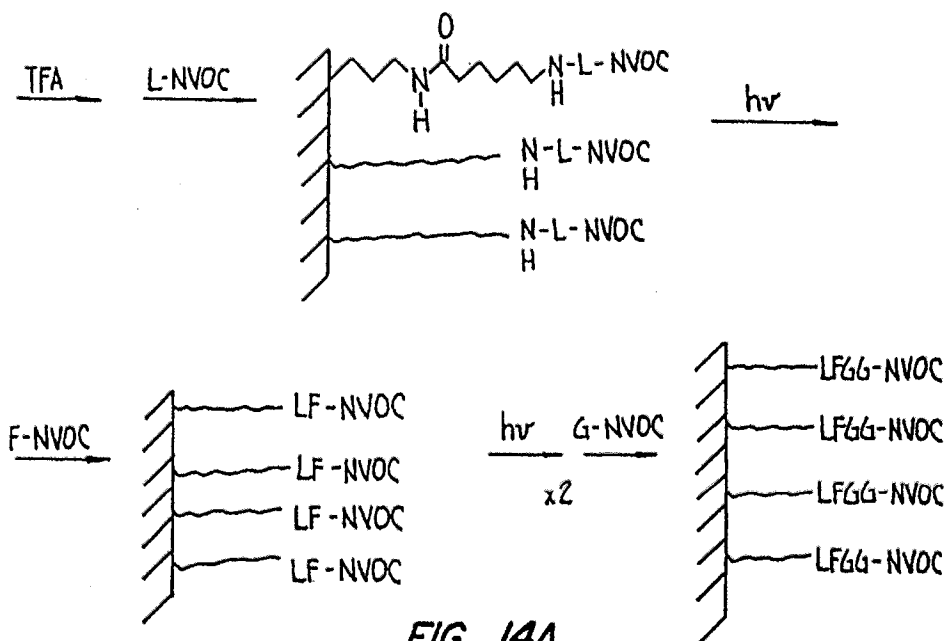
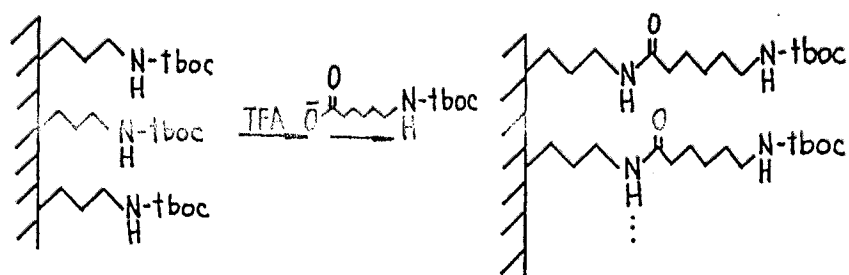


FIG. 14A.

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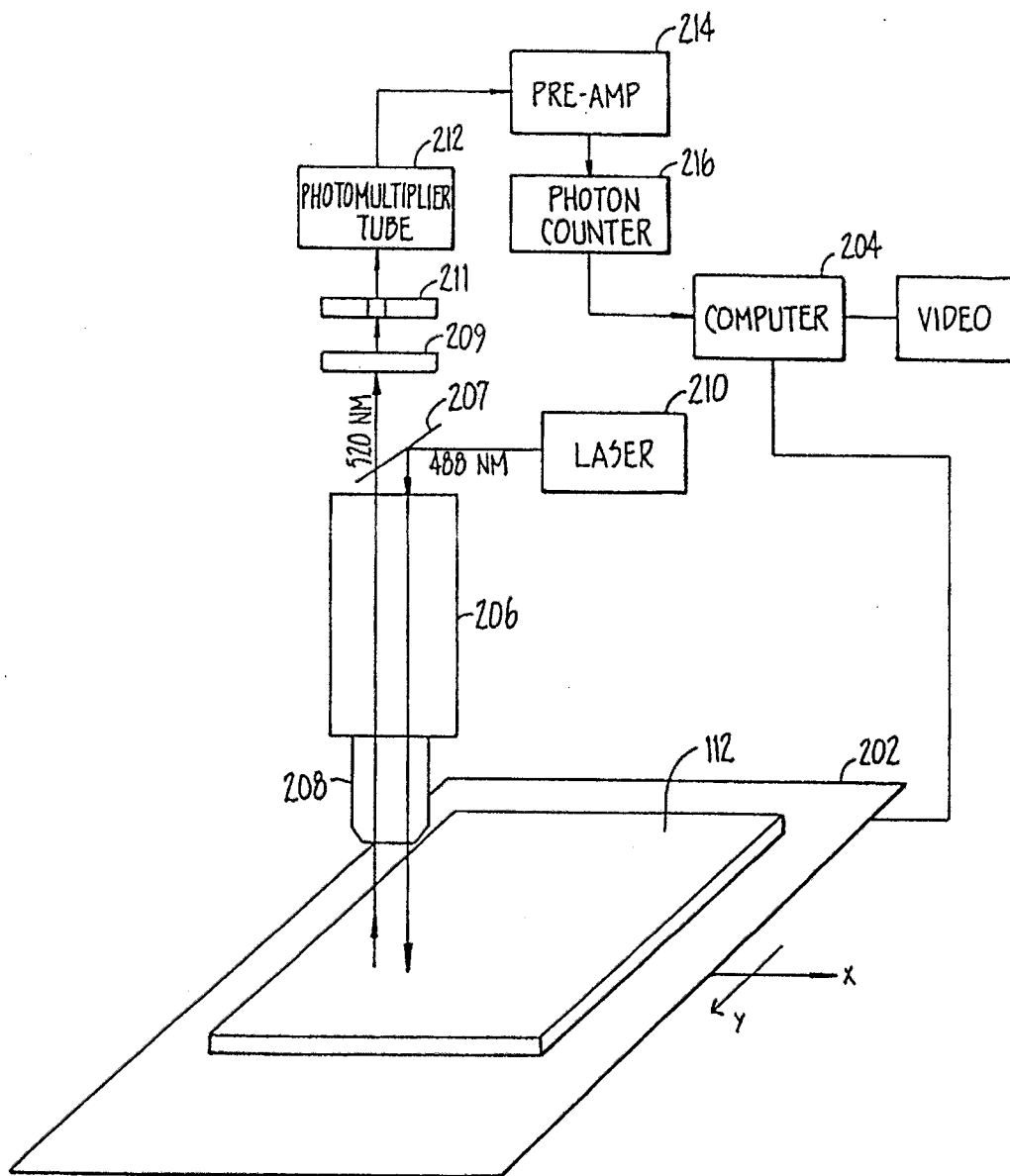


FIG. 9.

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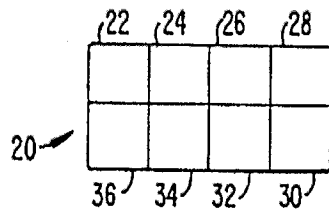


FIG. 10A.

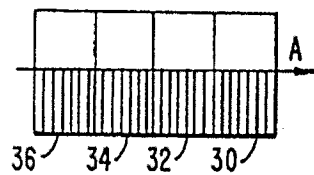


FIG. 10B.

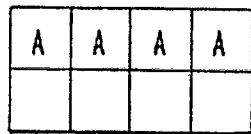


FIG. 10C.

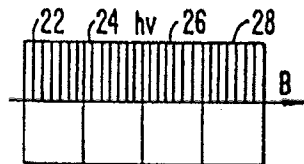


FIG. 10D.

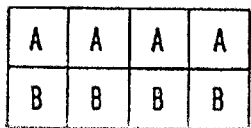


FIG. 10E.

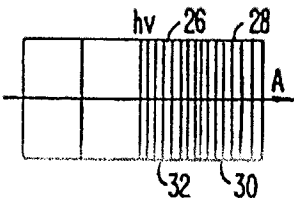


FIG. 10F.

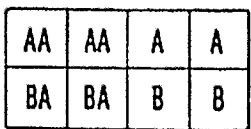


FIG. 10G.

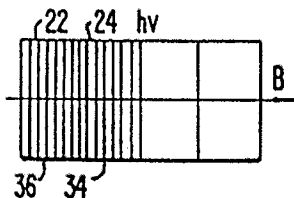


FIG. 10H.

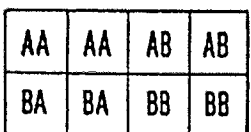


FIG. 10I.

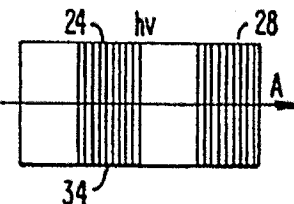


FIG. 10J.

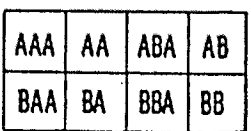


FIG. 10K.

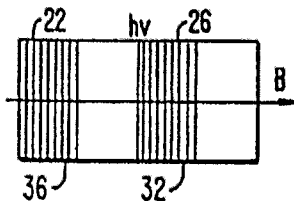


FIG. 10L.

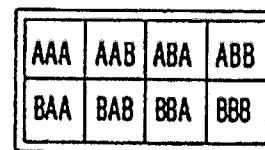


FIG. 10M.

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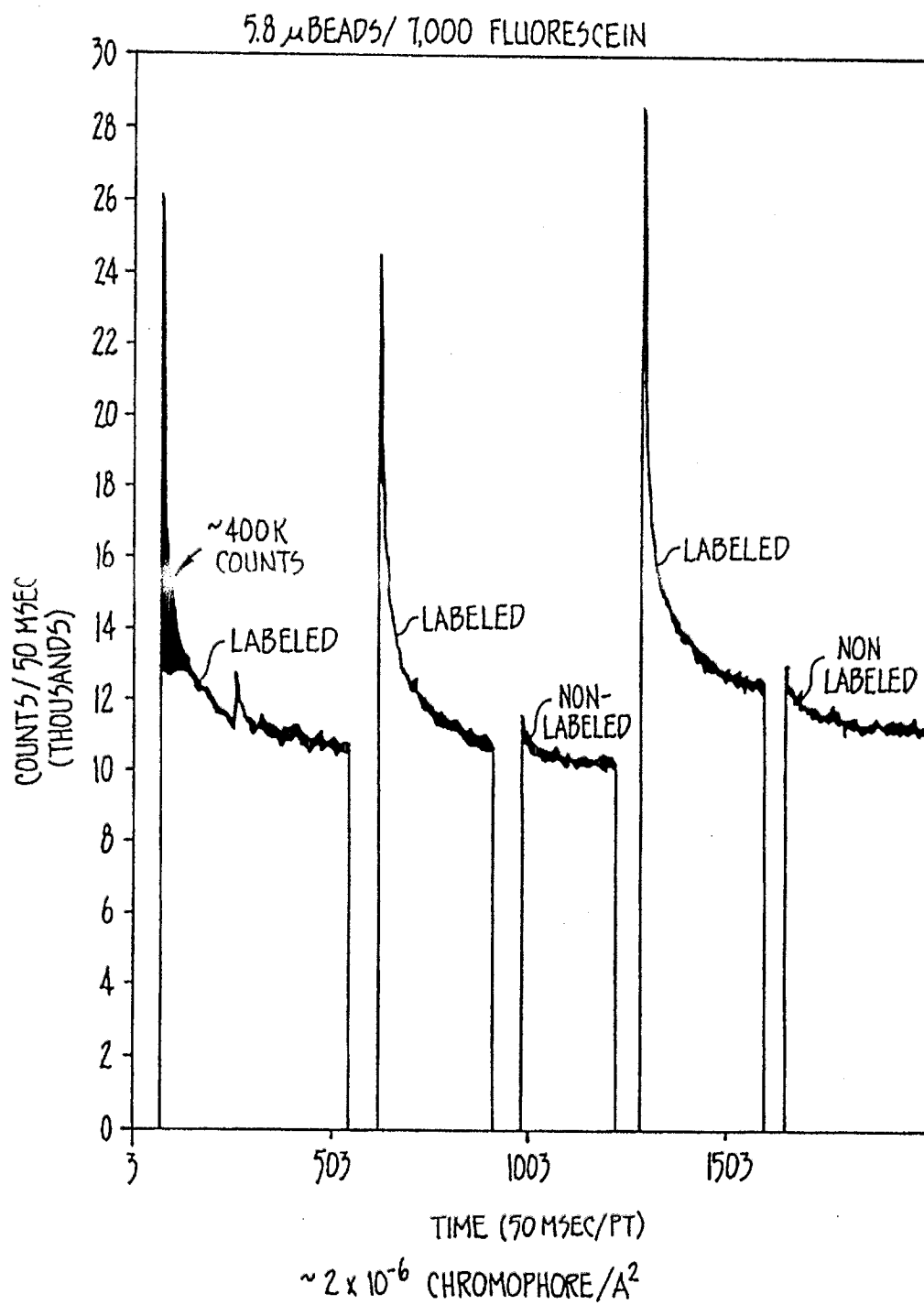


FIG. IIA.

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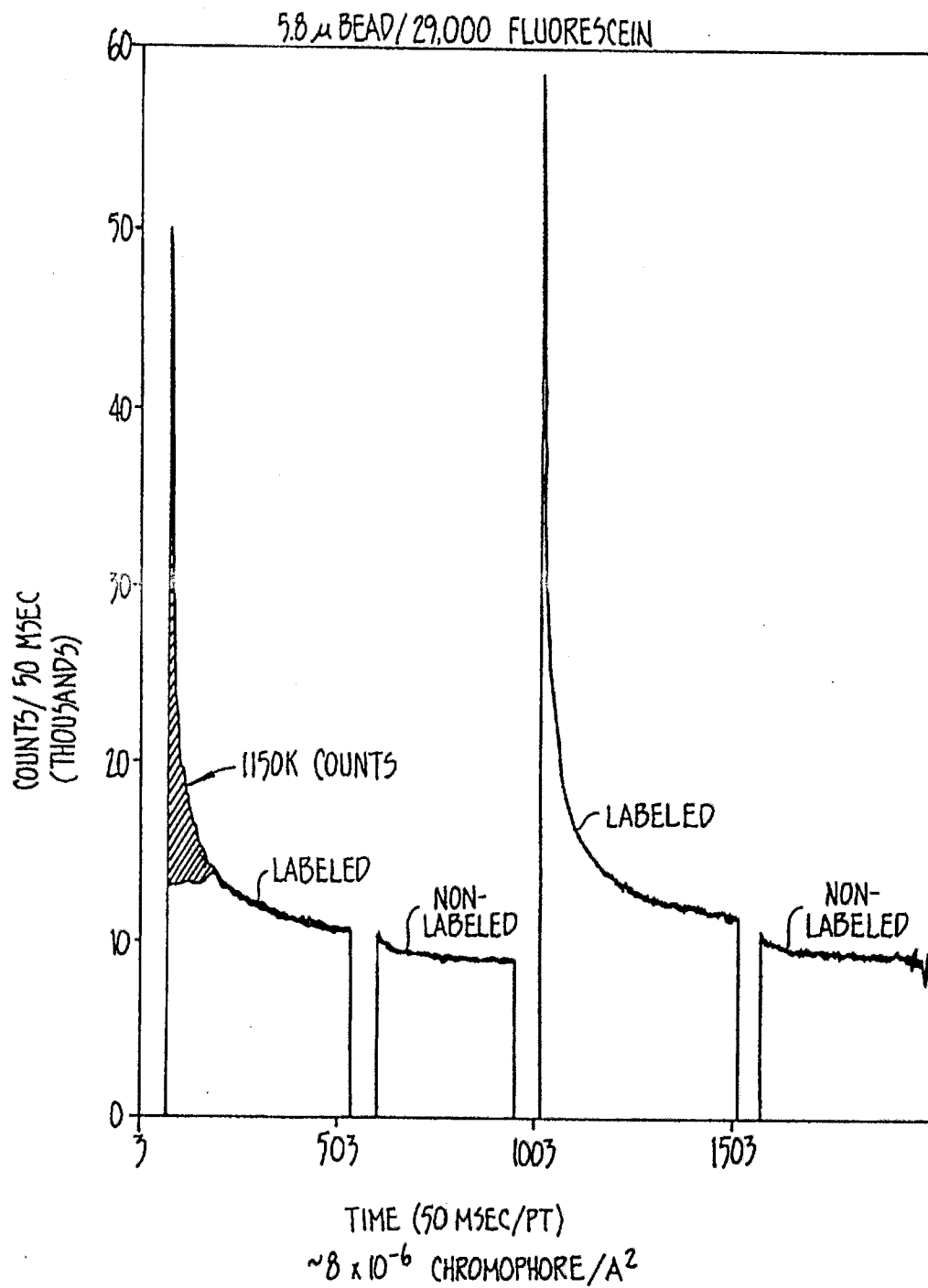


FIG. IIB.

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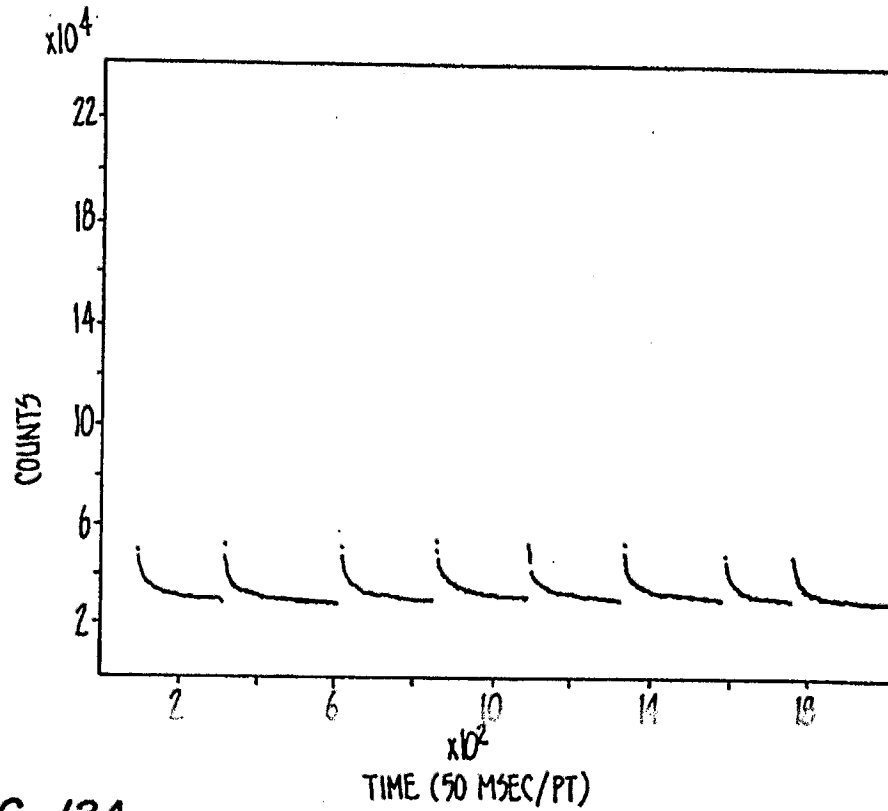


FIG. 12A.

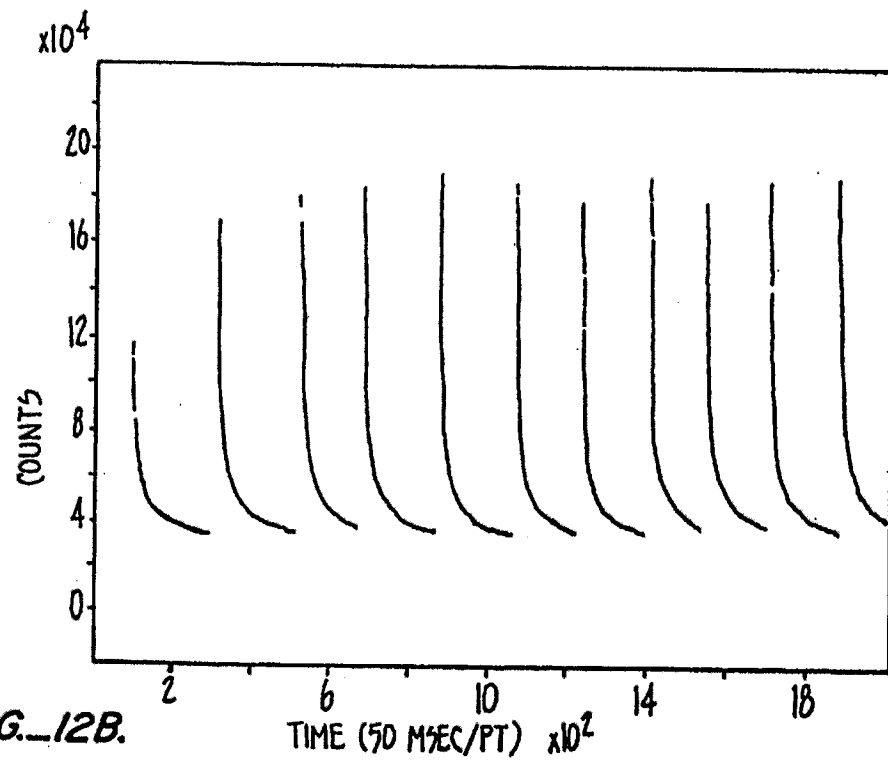


FIG. 12B.

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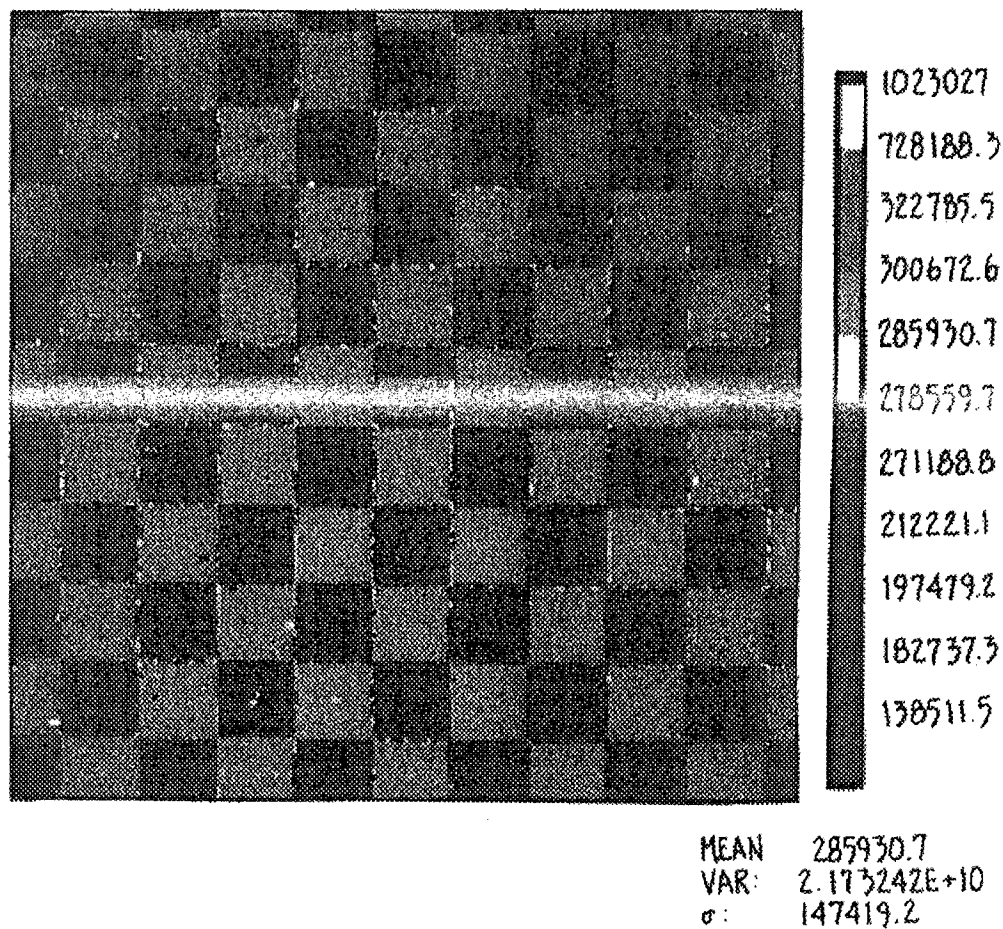


FIG. 13A.

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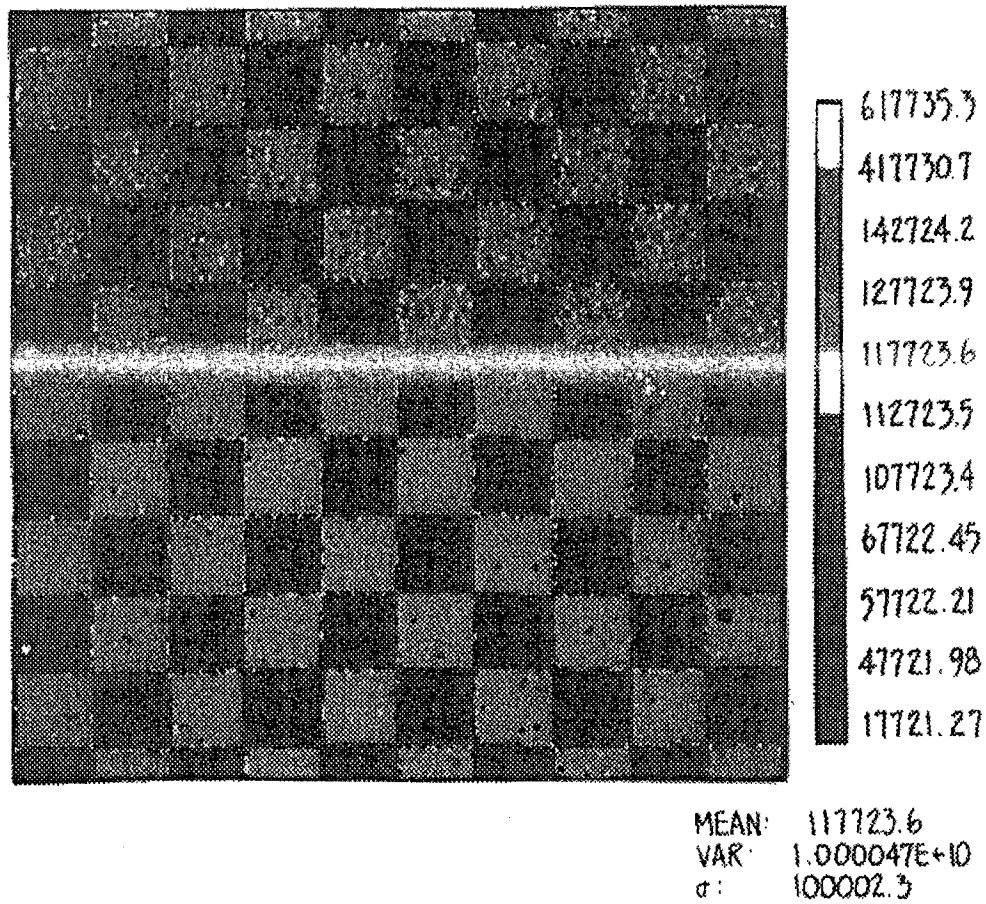


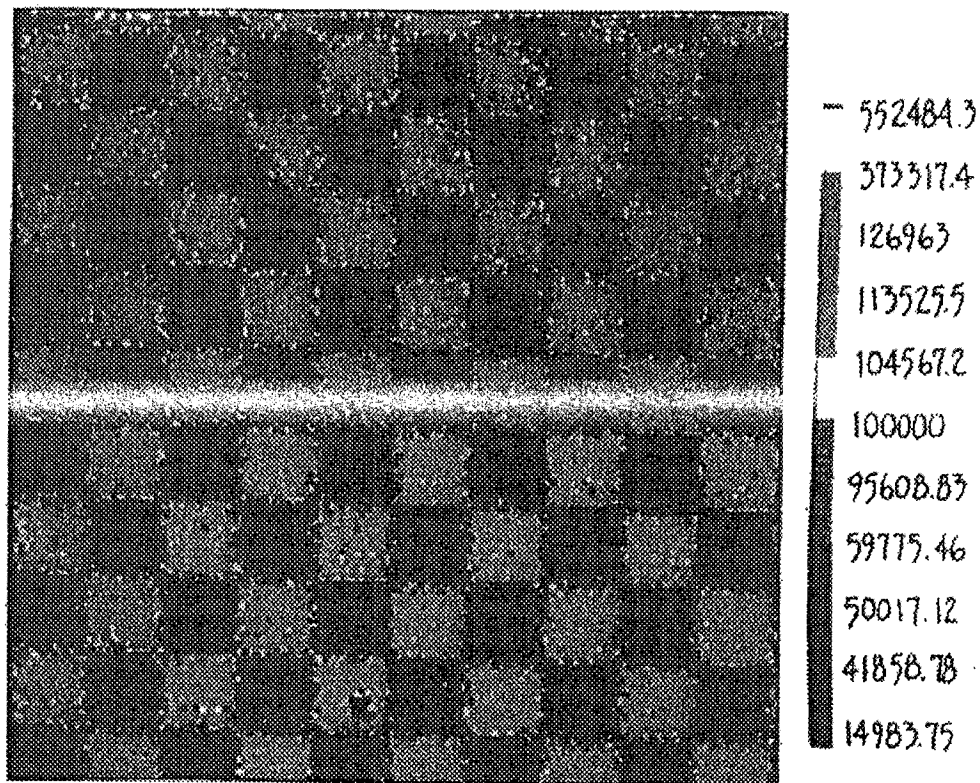
FIG. 13B.

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MEAN: 104567.2
VAR: 8.025189E+09
 σ : 89583.42

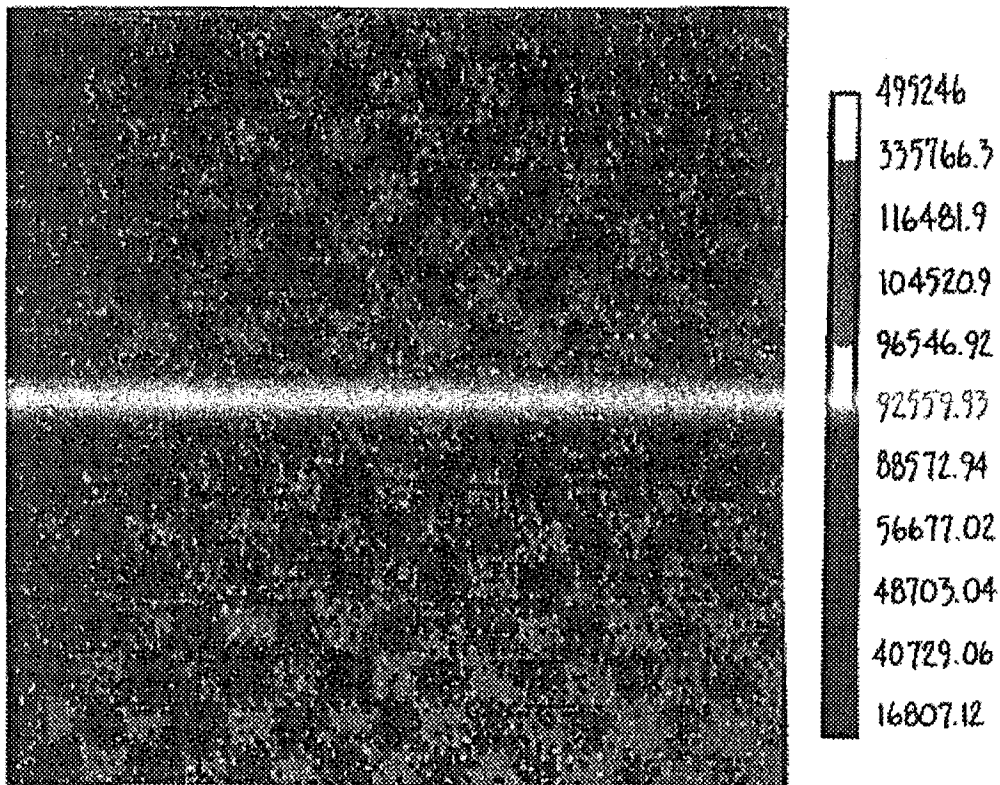
FIG. 13C.

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MEAN: 96546.92
VAR: 6.358437E+09
 σ 79739.8

FIG. 13D.

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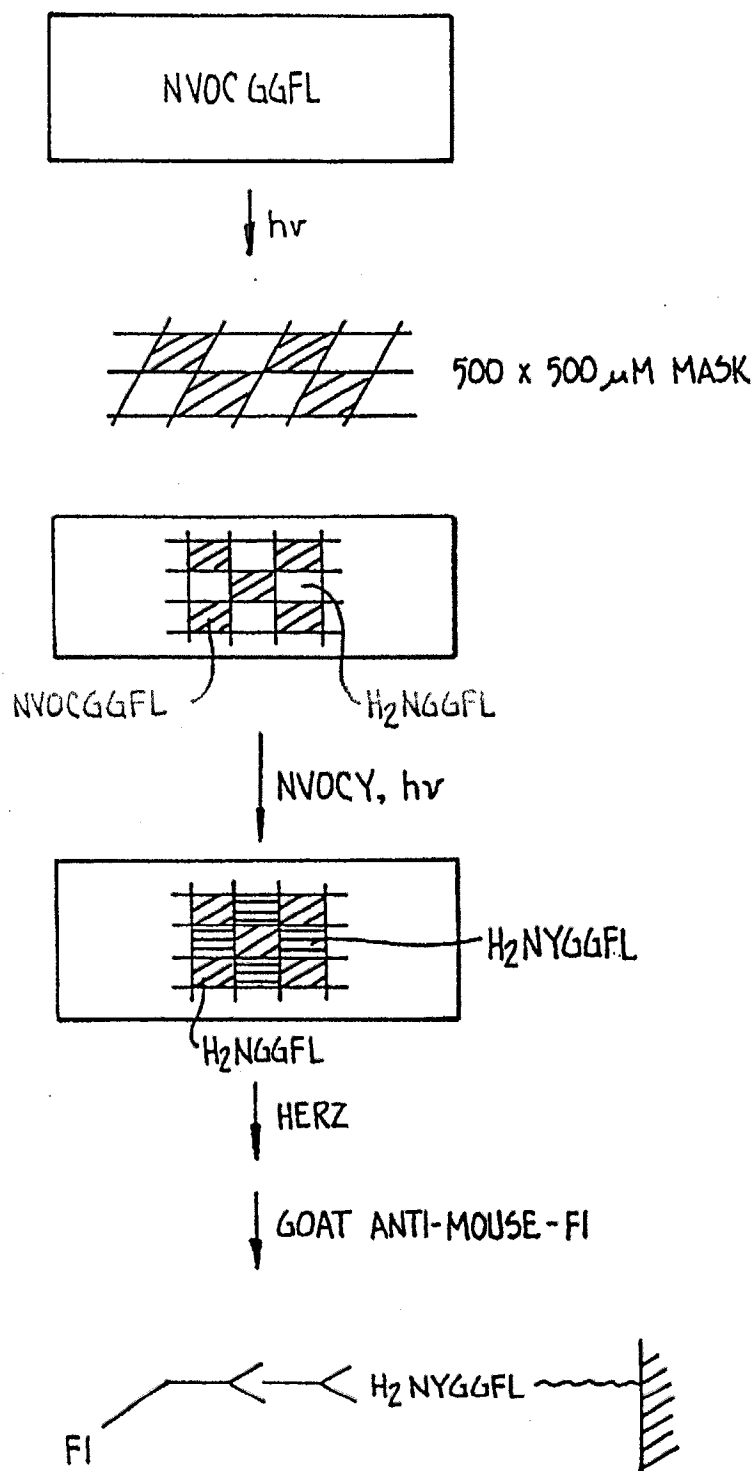


FIG. 14B.